

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
WACO DIVISION**

**BICAMERAL, LLC.,**

Plaintiff

**v.**

**ANALOG DEVICES, INC.,**

Defendant.

**CIVIL ACTION NO. 6:20-cv-00050**

**PATENT CASE**

**JURY TRIAL DEMANDED**

**COMPLAINT FOR PATENT INFRINGEMENT**

This is an action for patent infringement in which Bicameral, LLC. (“Plaintiff”) makes the following allegations against Analog Devices, Inc. (“Defendant”):

**PARTIES**

1. Plaintiff is a limited liability company organized and existing under the laws of the State of Texas, with a regular place of business at 17330 Preston Road, Suite 200D, Dallas, Texas 75252.

2. Upon information and belief, Defendant is a corporation organized and existing under the laws of the State of Massachusetts, with a regular place of business at One Technology Way, Norwood, Massachusetts 02062. Defendant may be served via its registered agent for service of process: CT Corporation System, 155 Federal Street, Suite 700, Boston, MA 02110.

**JURISDICTION AND VENUE**

3. This is an action for infringement of a United States patent arising under 35 U.S.C. §§ 271 (a)-(b), 281, and 284 – 85. This Court has subject matter jurisdiction over this action under 28 U.S.C. §1331 and §1338(a).

4. Defendant is subject to this Court’s specific and general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, due at least to Defendant’s substantial

business in this forum, including: (i) at least a portion of the infringements alleged herein; (ii) regularly doing or soliciting business, engaging in other persistent courses of conduct, and/or deriving substantial revenue from goods and services provided to individuals in Texas and in this district; and (iii) having a regular place of business in this District..

5. Venue is proper in this district pursuant to 28 U.S.C. § 1400(b). Defendant has a regular and established place of business in this District located at 6500 River Pl Blvd # 1, Austin, TX 78730. Additionally, Defendant has committed and continues to commit acts of patent infringement in this Judicial District, including making, using, offering to sell, and/or selling accused products and services in this District, and/or importing accused products and services into this District.

### **FACTUAL BACKGROUND**

6. On October 28, 2003, United States Patent No. 6,639,538 (the “’538 Patent”) was duly and legally issued by the United States Patent and Trademark Office for an invention entitled “Real-Time Transient Pulse Monitoring System and Method.” A true and correct copy of the ’538 Patent is attached hereto as Exhibit A.

7. Paolo G. Sechi and Richard C. Adamo are the inventors of the ’538 Patent.

8. Plaintiff, Bicameral, LLC, is assignee and owner of the right, title, and interest in and to the ’538 Patent, including the right to assert all causes of action arising under the ’538 Patent and the right to any remedies for infringement.

9. The ’538 Patent is valid and enforceable under United States Patent Laws.

10. The ’538 Patent recognized problems with existing transient monitoring systems, “conventional transient monitoring systems digitize the analog input signal and save the digital data in memory for subsequent download and evaluation.” Exhibit A at 1:46-48. “A disadvantage

of this technique is that the digital data must be post-processed, thus the characterization of the key parameters is not available in real time. Exhibit A at 1:48-51. Another disadvantage is that “while the digital data is being downloaded from the memory...the system is not collecting additional digital data...input transients will go undetected if they occur during this transfer period. Exhibit A at 1:51-54. “Repetitive or closely-grouped high frequency transients...increase the likelihood of a missed transient.” Exhibit A at 1:55-57.

11. To address the shortcomings of existing transient monitoring systems which digitize analog input signal and save the digital data in memory and stop collection of transients while digital data is being downloaded from the memory, the '538 Patent discloses, *inter alia*, a “a transient pulse monitor that is capable of measuring transients in real-time and to perform such real-time measurements without experiencing dead time.” Exhibit A at 1:64-67. Indeed, the inventions of the '538 Patent improved the functionality of transient monitoring systems. Another advantage of the invention is “for [a] monitor to process large amounts of data with minimal storage.” Exhibit A at 2:3-5. The “invention feature[s] continuously receiving an input signal; continuously sampling and digitizing the analog signal; buffering the digital data; putting in real-time from the digitized data a parameter value that represents a characteristic of the stimulus, discarding the digitized data after the data is used to compute the parameter value; outputting computer parameter values...,and buffer[ing] while outputting the parameter values to the system bus or storage medium, so as not to miss any transients that may have occurred during this period.” Exhibit A at 2:6-17.

12. Defendant directly or through intermediaries, makes, uses, imports, sells, and/or offers for sale products and or/systems (*e.g.*, Analog Devices ADXL345 (the “Accused Instrumentality”)) that infringe one or more claims of the '538 Patent. When placed into operation,

the Accused Instrumentality infringes claims 1, 2, 3, 9, 13, 14, 15, 17, 19, 21, and 22 of the '538 Patent.

**COUNT I**  
**DIRECT INFRINGEMENT OF U.S. PATENT NO. 6,639,538**

13. Plaintiff realleges and incorporates by reference hereto all allegations set forth in paragraphs 1 through 12 herein.

14. Upon information and belief, Defendant has been and is now infringing claims 1, 2, 3, 9, 13, 14, 15, 17, 19, 21, and 22 of the '538 Patent in the State of Texas, in this Judicial District, and elsewhere in the United States, by, among other things, directly or through intermediaries, making, using, importing, selling and/or offering for sale products and/or systems (*e.g.*, Analog Devices ADXL345 (the "Accused Instrumentality")), covered by one or more claims of the '538 Patent to the injury of Plaintiff. Defendant is directly infringing, literally infringing, and/or infringing the '538 Patent under the doctrine of equivalents. Defendant is thus liable for infringement of the '538 Patent pursuant to 35 U.S.C. § 271(a).

15. The Accused Instrumentality infringes claim 1 of the '538 Patent. The Accused Instrumentality is a system for characterizing a stimulus represented by an analog signal, which comprises a conversion circuitry that continuously receives the analog signal and converts it into digital data. The Accused Instrumentality comprises digital circuitry, which is in communication with the conversion circuitry to continuously receive the digital data from the conversion circuitry, and the digital circuitry dynamically computes from the digital data, a value, that characterizes a parameter of the stimulus while the digital circuitry continuously receives new digital data from the conversion circuitry. For example, the Accused Instrumentality is a digital accelerometer system that detects any change in the motion of a device. Evidence of Infringement, attached hereto as Exhibit B, at Figs. 1-6. Acceleration along the X axis, Y axis, and Z axis, for

example, is a stimulus represented by analog signals such as the change in capacitance due to acceleration. *Id.* Furthermore, the Accused Instrumentality consists of digital circuitry which continuously receives data from conversion circuitry. *Id.* at Fig. 4. The digital circuitry consists of digital filter, FIFO, control, interrupt logic and serial input/output block. *Id.* at Figs. 4, 7. The control and interrupt logic block evaluates the acceleration value from the motion data and compares the acceleration data value with a threshold value stored in registers. *Id.* Based on comparison, it characterizes the acceleration value in real-time into events. *Id.*

16. The Accused Instrumentality infringes claim 2 of the '538 Patent. The Accused Instrumentality meets the limitations of claim 1 and further the digital circuitry is in communication with a bus, and the digital circuitry outputs the computed values over the bus while the digital circuitry continuously receives new digital data from the conversion circuitry. For example, in the Accused Instrumentality, the digital circuitry is in communication with a bus, and the digital circuitry outputs the computed value over the bus while the digital circuitry continuously receives new digital data from the conversion circuitry. Ex. B, Figs. 4, 8. Serial communication of data to other devices is possible via SPI (serial peripheral interface) bus. *Id.* The control and interrupt logic passes the data to serial input/output port which further sends it to connected devices via the SPI bus. *Id.*

17. The Accused Instrumentality infringes claim 3 of the '538 Patent. The Accused Instrumentality meets the limitations of claim 1 and further the characterized parameter is a first parameter, and the digital circuitry is programmed to characterize the first parameter and is re-programmable to characterize a second parameter that is different than the first parameter. For example, the Accused Instrumentality is programmed to detect activity, inactivity, tap and free fall motion. Ex. B, Figs. 4, 7 and 9. Threshold values for every event are pre-defined in the system.

*Id.* The system compares the evaluated motion value with the threshold value and characterizes different events. *Id.* The Accused Instrumentality is re-programmable to detect different activity. *Id.*

18. The Accused Instrumentality infringes claim 9 of the '538 Patent. The Accused Instrumentality meets the limitations of claim 1 and further the conversion circuitry and the digital circuitry (digital filter, control and interrupt logic) are provided on the same integrated circuit chip. Ex. B, Fig. 4.

19. The Accused Instrumentality infringes claim 13 of the '538 Patent. The Accused Instrumentality meets the limitations of claim 1 and further have self-test circuitry which makes the system capable of performing a self-test. Ex. B, Fig. 10.

20. The Accused Instrumentality infringes claim 14 of the '538 Patent. The Accused Instrumentality is a system for characterizing a stimulus represented by an analog signal, including an analog-to-digital converter receiving the analog signal and converting the analog signal into digital data; a processing unit dynamically computing from the digital data a value that characterizes a parameter of the stimulus; and a memory buffer in communication between the analog-to-digital converter and the processing unit, the memory buffer continuously receiving new digital data from the analog-to-digital converter while the processing unit processes digital data received from the memory buffer to compute the value that characterizes the parameter of the stimulus. For example, the Accused Instrumentality is a digital accelerometer system that detects any change in the motion of a device and is, therefore, a system for characterizing a stimulus represented by an analog signal. Ex. B, Figs. 1-6. The Accused Instrumentality further includes conversion circuitry. *Id.* The conversion circuitry includes an ADC (Analog-to-Digital) converter block. *Id.* The conversion circuitry continuously receives the analog signal, such as capacitance

and/or voltage that represents acceleration along the X, Y, and Z-axis and converts it into digital data. *Id.* The accused instrumentality also includes a processing unit which continuously receives data from conversion circuitry. *Id.* The digital circuitry consists of digital filter, control and interrupts logic block. *Id.* The digital filter processes the digital motion data and control and interrupt logic block evaluate the acceleration value from the motion data and compares the acceleration data value with a threshold value stored in registers. *Id.* The Accused Instrumentality also includes FIFO memory. *Id.* The FIFO stores the digital motion data received from the ADC (analog to digital converter). *Id.* The FIFO is in communication with the digital circuitry (“processing unit”). *Id.* The digital circuitry calculates the value of acceleration and compares it to the threshold values, to characterize an event (tap/free-fall). *Id.*

21. The Accused Instrumentality infringes claim 15 of the ’538 Patent. It meets the limitations of claim 14 and further the processing unit includes a digital signal processor in communication with the memory buffer. For example, in the Accused Instrumentality, the digital circuitry consists of a digital filter. Ex. B, Fig. 4. The digital filter is a digital signal processing block. *Id.*

22. The Accused Instrumentality infringes claim 17 of the ’538 Patent. It meets the limitations of claim 14 and further the rate at which the memory buffer receives new digital data from the AID converter is less than a rate at which the processing unit obtains digital data from the memory buffer. Ex. B, Fig. 11. For example, the Accused Instrumentality includes of a 32 bit FIFO memory buffer. *Id.* The data communication rate of FIFO can be set such that the data output rate from the FIFO is faster than the data reception rate. *Id.* Thus FIFO receives data at a slower rate.

23. The Accused Instrumentality infringes claim 19 of the '538 Patent. It meets the limitations of claim 14 and further the characterized parameter is a first parameter, and wherein the processing unit is programmed to characterize the first parameter and is re-programmable to characterize a second parameter that is different than the first parameter. For example, the Accused Instrumentality is programmed to detect activity, inactivity, tap and free fall motion (different parameters). Ex. B, Fig. 7. Threshold values for every event are pre-defined in the system ("programmed"). *Id.* The system compares the evaluated motion value with the threshold value and characterizes different events ("parameters"). *Id.*

24. The Accused Instrumentality infringes claim 21 of the '538 Patent. The Accused Instrumentality practices a method of characterizing a stimulus represented by an analog signal, continuously receiving digital data digitized from the analog signal representing the stimulus and dynamically computing from the continuously received digital data a value that characterizes a parameter of the stimulus while receiving new digital data digitized from the analog signal representing the stimulus. For example, the Accused Instrumentality includes a digital accelerometer that continuously receives an analog signal, such as capacitance and/or voltage that represents acceleration along the X, Y, and Z-axis and converts it into digital data. Ex. B, Figs. 1-7. The digital filter, FIFO, control, interrupt logic and serial input/output block of the Accused Instrumentality compares the acceleration data value with a threshold value stored in registers. *Id.*

25. The Accused Instrumentality infringes claim 22 of the '538 Patent. The Accused Instrumentality practices the method of claim 21 and further converts the analog signal representing the stimulus into the digital data that are continuously received. Ex. B, Fig. 4.



26. Unless a permanent injunction is issued enjoining Defendant and its agents, servants, employees, representatives, affiliates, and all others acting in active concert therewith from infringing the '538 Patent, Plaintiff will be greatly and irreparably harmed.

**JURY DEMAND**

Plaintiff, under Rule 38 of the Federal Rules of Civil Procedure, hereby requests a trial by jury on all issues so triable by right.

**PRAYER FOR RELIEF**

WHEREFORE, Plaintiff respectfully requests that the Court find in its favor and against Defendant, and that the Court grant Plaintiff the following relief:

- a. A judgment in favor of Plaintiff that Defendant has infringed the Asserted Patent;
- b. A judgment in favor of Plaintiff that Defendant has induced its resellers and end-users to infringe the Asserted Patent;
- c. A permanent injunction enjoining Defendant and its officers, directors, agents, servants, affiliates, employees, divisions, branches, subsidiaries, parents, and all others acting in active concert therewith from infringement, inducing the infringement of, or contributing to the infringement of the Asserted Patent, or such other equitable relief the Court determines is warranted;
- d. A judgment and order requiring Defendant pay to Plaintiff their damages, costs, expenses, and prejudgment and post-judgment interest for Defendant's infringement of the Asserted Patent as provided under 35 U.S.C. § 284, and an accounting of ongoing post-judgment infringement; and
- e. Any and all other relief, at law or equity, to which Plaintiff may show itself to be entitled.

DATED January 24, 2020.

Respectfully submitted,

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